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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,326	02/06/2004	Takuji Nomura	81846.0035	8530
26021 7590 01/08/2008 HOGAN & HARTSON L.L.P. 1999 AVENUE OF THE STARS SUITE 1400 LOS ANGELES, CA 90067			EXAMINER VAN, LUAN V	
			ART UNIT 1795	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/774,326	Applicant(s) NOMURA ET AL.	
	Examiner Luan V. Van	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on October 30, 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 4, 7, 14-17 and 21-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7, 14-17 is/are allowed.
- 6) ☒ Claim(s) 1, 4 and 21-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 30, 2007 has been entered.

Response to Amendment

Applicant's amendment of October 30, 2007 does not render the application allowable.

Status of Objections and Rejections

The objection to the claims 14 and 16 has been withdrawn in view of Applicant's amendment.

The rejection of claims 1, 4, 5 and 21-24 rejected under 35 USC 112, second paragraph, is withdrawn in view of Applicant's amendment.

All other rejections from the previous office action are maintained.

New grounds of rejection under 35 U.S.C. 103(a) are necessitated by the amendments.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 4 and 21-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 requires an under-lapping part that overlaps a side edge portion of an adjacent tile. Applicant's original specification, see figures 1, 2, 6, 12 and 26, shows the under-lapping part 67 (in figure 26) for the module overlapping the projecting part 110a of an adjacent solar cell module, and not an adjacent tile. The figures show no overlap of the under lapping part with any portion of an adjacent tile, let alone a lower portion of the adjacent tile. In addition, claim 1 requires a projecting part to overlap an adjacent tile, which is supported in figure 27. However, the combination of an under lapping part overlapping an adjacent tile **and** a projecting part overlapping an adjacent tile is not supported by the specification. Furthermore, claim 4's requirement that a projecting part being in noncontact with an adjacent tile is not supported in combination with the limitations recited in claim 1. The specification does not describe this configuration and the subject matter is deemed new matter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1,4, 21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 11-200561, herein referred to as JP '561, in view of Ouchida et al. (U.S. 6,525,264) and Dinwoodie (U.S. 5,505,788).

Regarding claims 1 and 4, JP '561 teaches a solar cell module comprising photovoltaic cell (2); and a rectangular frame that encompasses the instant base member and comprises a ridge-side surface at section (1D) which projects downward at part (13D); an eaves-side surface at section (1C); a trough-side surface at section (13A) and an anti-trough-side surface at section (13B) (see Figures 1,2, and 3). The trough-side surface at section (13A) has a under-lapping part (12A, 14A, 15A), extending along the ridge-side to the eaves-side of the roof and configured to overlap the ridge side

Art Unit: 1795

edge of an adjacent solar cell module (see Figures 3 and 7). Likewise, the anti-trough-side surface at section (13B) has a projecting part (12B, 14B), extending along the ridge-side to the eaves-side of the roof and configured to overlap the trough section of an adjacent solar cell module (see Figures 3 and 7). Note that a solar cell module is a tile and thus, an adjacent solar cell module is also an adjacent tile. The photovoltaic cell (2) is mounted such that a lower surface of photovoltaic cell (2) is positioned above and is mounted to an upper surface of said rectangular frame (see Figure 2). For example, reference sign (3B) in Figure 2 is an upper surface of the frame and the photovoltaic cell (2) is mounted such that a lower surface of photovoltaic cell (2) is positioned above and is mounted to said upper surface at (3B). A lower surface of, for example, the projecting part (12B) of the anti-trough-side contacts an upper edge of a rising wall (11A) of section (13A) which defines the trough section of the adjacent tile or module to seal a gap (see Figure 11).

JP '561 teaches the limitations of the instant claims other than the difference which is discussed below.

JP '561 does not specifically teach the structure of its photovoltaic cell (2), and, as such, does not specifically teach the combination of a base member and support member recited in instant independent claim 1 or placement of the solar cell on an uppermost surface of the base member.

Ouchida et al. teaches a photovoltaic cell comprising semiconductor layer (402), a sealing resin film (403), and a thermal insulation layer (404) (see Figure 12; and col. 18, lines 23-44). The sealing resin film along with frame (405) is a rectangular base

Art Unit: 1795

member. The thermal insulation layer (404) corresponds to the instant insulating support member (see col. 18, lines 34-44). Ouchida et al.'s photovoltaic cell structure provides the advantage of suppressing photo-degradation and providing large output (see col. 4, lines 16-19). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used Ouchida et al.'s photovoltaic cell structure for the photovoltaic cell of JP '561 because Ouchida et al.'s photovoltaic cell structure provides the advantage of suppressing photo-degradation and providing large output (see co. 4, lines 16-19). As seen in Figure 12, Ouchida et al.'s frame, which is also a bottomless and topless box, is adapted to receive said insulation layer (104), as per instant claim 22.

Dinwoodie discloses a thermally regulated photovoltaic roofing assembly as shown in figure 9. Figure 9 shows the photovoltaic tiles, 902, are configured to be laid together with tiles, 904, on the roof of a building. Figures 1 through 8 all show different embodiments of the solar cell modules with the solar cells provided on the uppermost surface of the base member such that a lower surface of the solar cell is positioned above and is mounted to the uppermost surface of the base member. The figures also show the use of insulating support members provided on lower surfaces of the base members, rectangular base members (shaped as the solar cell modules) with downward projected surfaces to mount the module. It would have been further obvious to one having ordinary skill in the art at the time the invention was made to place the solar cell of JP '561 on the uppermost surface as in Dinwoodie because the specific placement of the solar cell is a design choice and the tiles of Dinwoodie show a known

Art Unit: 1795

design within the art is to place the solar cells on the uppermost surface of a tile base. Further, the placement on the uppermost surfaces eliminates any material above the solar cell that could shadow the cell and reduce the power output.

With respect to the limitation that the under lapping part and projecting part is continuously, i.e. integrally, provided on a side of the base member, the use of a one-piece construction instead of the structure disclose in JP '561 would be merely a matter of obvious engineering choice (MPEP 2144.04 V.). Furthermore, it is understood to one having ordinary skill in the art that forming the under lapping part and projecting member integrally with the base member would simplify the construction and reduce the number of parts for assembly. It would have been obvious to one having ordinary skill in the art to have formed the under lapping part and projecting part integrally with the base member in order to simplify the construction of the solar cell module.

Regarding claim 4, JP '561 teaches that part of the projecting part 12B is in non-contact with the adjacent tile (figure 11).

Regarding claim 21, JP '561's rectangular frame, which encompasses the instant base, is a box that is bottomless, as well as topless.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP '561 in view of Ouchida et al. and Dinwoodie as applied to claims 1,4, 21, and 22 above, and further in view of Nakazima et al. (EP 1071139 A2).

JP '561 in view of Ouchida et al. and Dinwoodie, as relied upon for the reasons recited above, teaches the limitations 23, the difference being that JP '561 in view of

Art Unit: 1795

Ouchida et al. and Dinwoodie does not specifically teach that the photovoltaic cell has a terminal box, and that the terminal box is inserted and mounted in an opening formed in the base member. However, the use of a base member that has an opening for inserting and mounting a terminal box for a photovoltaic cell is conventional in the art, as seen in Figure 1 of Nakazima et al., which has terminal box storage recess (3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the module structure of JP '561 in view of Ouchida et al. and Dinwoodie so as to include an opening for inserting and mounting a terminal box for the photovoltaic cell because such is conventional in the art, as shown by Nakazima et al.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP '561 in view of Ouchida et al. and Dinwoodie as applied to claims 1,4, 21, and 22 above, and further in view of JP 2000-174313, herein referred to as JP '313.

JP '561 in view of Ouchida et al. and Dinwoodie, as relied upon for the reasons recited above, teaches the limitations 24, the difference being that JP '561 in view of Ouchida et al. and Dinwoodie does not specifically teach that the insulating support member, i.e., said thermal insulation layer (404), prevents the base member, i.e., the frame, from being deformed when the frame receives the weight of a worker stepping on or laying the solar cell module. JP '313 teaches a solar cell module that enables a worker to stand on the module when the worker installs and fixes the module, wherein, as seen in Figures 8 and 9, the module has a supporter material (23) that permits large loading on the module (see also paragraph 0146). It would have been obvious to one of

Art Unit: 1795

ordinary skill in the art at the time the invention was made to have provided the solar cell module of JP '561 in view of Ouchida et al. and Dinwoodie with the support structure as taught by JP '313 because this would provide the solar cell module with support that permits large loading on the module, and that enables a worker to stand on the module when the worker installs and fixes the module, as taught by JP '313.

Allowable Subject Matter

Claims 7 and 14-17 are allowed. The reasons for allowance have been discussed in the office action dated August 22, 2007.

Response to Arguments

In the arguments presented on page 10 of the amendment, the applicant argues that the applied references do not teach or suggest the limitation of an under lapping part is continuously provided the base member and also to overlap an adjacent tile, and in projecting part is continuously provided on the base member and to overlap the adjacent tile. First, applicant's amendment to claim 1, originally filed May 31, 2007, has introduced new matter to the claim. As noted above, applicant's original specification shows the under-lapping part 67 (in figure 26) for the module overlapping the projecting part 110a of an adjacent solar cell module, and not an adjacent tile. The figure show no overlap of the under lapping part with any portion of an adjacent tile, let alone a lower portion of the adjacent tile. In addition, claim 1 requires a projecting part to overlap an adjacent tile, which is supported in figure 27. However, the combination of an under lapping part overlapping an adjacent tile **and** a projecting part overlapping an adjacent

Art Unit: 1795

tile is not supported by the specification. Furthermore, with respect to the limitation that the under lapping part and projecting part is continuously, i.e. integrally, provided on a side of the base member, the use of a one-piece construction instead of the structure disclose in JP '561 would be merely a matter of obvious engineering choice (MPEP 2144.04 V.). It is understood to one having ordinary skill in the art that forming the under lapping part and projecting member integrally with the base member would simplify the construction and reduce the number of parts for assembly. It would have been obvious to one having ordinary skill in the art to have formed the under lapping part and projecting part integrally with the base member in order to simplify the construction of the solar cell module. Finally, it is noted that the "mere existence of differences between the prior art and an invention does not established the invention's nonobviousness." *Dann v. Johnston*, 425 US 219, 230, 189 USPQ 257, 261 (1976). Applicant's arguments have been fully considered but they are not persuasive.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luan V. Van whose telephone number is 571-272-8521. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1795

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LWV
January 3, 2008



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